

REMARKS

Applicants and the undersigned are most grateful for the time and effort accorded the instant application by the Examiner, including the telephonic interview on April 16, 2002. The Office is respectfully requested to reconsider the objection to the drawings and the rejection of Claims 1-22 under 35 U.S.C. § 103(a) in light of the following remarks.

The drawings continue to be objected to in view of 37 C.F.R. 1.83(a), with the Examiner asserting the drawings must show every feature of the invention specified in the claims. As noted in the Office Action, Figure 1 shows the base unit of the compound without the claimed substitutions. Figure 1 thus provides a frame of reference for the claimed invention, but is not necessary for an understanding of the invention. *See* 35 U.S.C. § 113. As such the requirements of 37 C.F.R. 1.83(a) are inapposite, and Applicant respectfully requests this objection be withdrawn.

Claims 1-14 stand rejected under 35 U.S.C. 103(a) in view of Tang et al. (hereafter "Tang") in view of Moore et al. (hereafter "Moore"). Claims 15-22 also stand rejected under 35 U.S.C. 103(a) in view of Tang and Moore as applied to Claims 1-14 and in further view of the statement in the written description (Page 8, lines 4-10) that the organic EL device could have two or three layer structure in addition to the electrodes. Applicant respectfully traverses these rejections and submits they should be withdrawn in view of the following remarks.

Absent any teaching or suggestion by either Tang or Moon et al of any advantage of combining their teachings, it is improper to combine them to show obviousness. In the present case, there is no suggestion or motivation to combine the references. Moreover, the impropriety of the rejection of the present application under 35 U.S.C. § 103 is further pointed up by the fact that Applicant's invention reveals an unexpected and surprisingly increase in the luminescence efficiency.

Simply put, there is no teaching or suggestion in Tang of modifying the relevant electron states through specific substitutions on the quinolate ring to increase the luminescence of the tris(8-quinolinol) aluminum. Furthermore, Moore et al. teaches away from the present invention as Moore et al. states the 3 position has a relatively small influence on the hue of emission. (Col. 7, lines 4-6) The combination of the references is thus improper because there is no suggestion or motivation to do so explicitly or implicitly in the references.

Moreover, when discussing the effect of substituents on hue emissions, Moore et al., states "[w]hen the pyridino ring component of the quinoline ring is substituted with one or more electron donating substituents the effect is to shift the hue of emission to a lower wavelength." (Col. 6, lines 62-65) Moore et al. continues by stating "electron accepting substituents on the benzo ring component of the quinoline nucleus shift the hue of emission to shorter wavelengths." (Col. 7, lines 14-16) In the present invention, however, emissions are not shifted to the lower or shorter wavelengths.

Submitted herewith are two charts entitled "Ligand substitution modifies the optical spectrum" and "Alq3 derivatives with improved luminescence efficiency." As

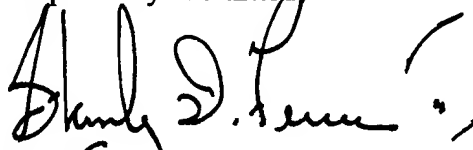
indicated on the "Ligand substitution" chart, when Alq3 is doped in accordance with the present invention, emissions appear in the higher or longer wavelengths, contrary to the teachings of the Moore et al. reference. Furthermore, in accordance with the present invention the "Alq3 derivatives" chart shows an increase in luminescence efficiency of 4.0. These charts demonstrate the increased quantum efficiency through direct modification of the Alq3 molecule and without the addition of highly fluorescent dopants. As such, Tang and Moore et al. do not obviate the invention of Claims 1-14 and the rejection should be withdrawn.

The above discussion of Tang and Moore et al. is also relevant to the rejection of Claims 15-22. Furthermore, Applicants respectfully maintain disagreement with the Examiner's characterization of the statements on Page 8, Lines 4-10, as an admission against interest. The references cited by Examiner, Adachi, et al., US 5,709,959 (Col. 1, lines 15-67), "Adachi," Ohta, et al., US 5,597,925 (Col. 2, lines 10-67), "Ohta," and Saito, et al., US 5,382,477 (Col. 1, lines 40-67) "Saito" do disclose organic EL devices having two or three layers between the electrodes. However, Saito and Ohta both disclose an organic layer composed of an oxadiazole compound, and Adachi discloses injection barrier association with carrier injection of an organic layer interface to increase the durability an organic electroluminescent display device, the layer being any one known conventional material. The references do not suggest the use of substituted Alq3.

In view of the foregoing, it is respectfully submitted that Claims 1, 8, 15 and 19 fully distinguish over the applied art and are thus in condition for allowance. By virtue of dependence from what is believed to be allowable independent Claims 1, 8, 15 and 19, it is respectfully submitted that Claims 2-7, 9-14, 16-18 and 20-22 are also presently allowable.

In summary, it is respectfully submitted that the instant application, including Claims 1-22, is presently in condition for allowance. Notice to that effect is hereby earnestly solicited.

Respectfully submitted



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In view of the foregoing, it is respectfully submitted that Claims 8,

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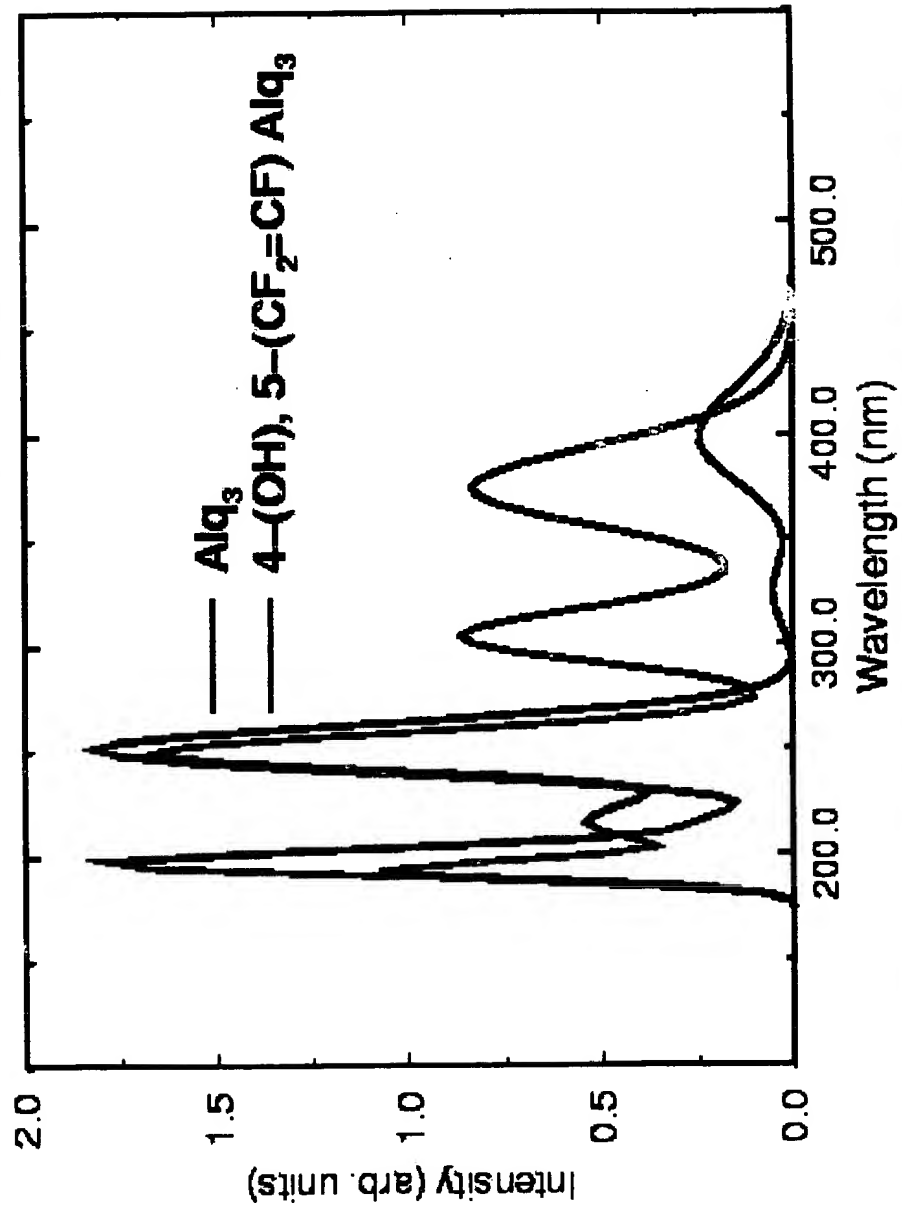
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Ligand substitution al spectrum

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foregoing, it is respectfully submitted that Claims 8,

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